

REMARKS/ARGUMENTS

Claims 1, 2, 4-9 and 11-21 are pending herein. Claims 1, 4, 11 and 21 have been amended hereby to correct matters of form and for clarification purposes. Applicant respectfully submits that no new matter has been added.

1. Claims 1, 15-17, 19 and 20 were rejected under §102(b) over Kano. Applicant respectfully traverses this rejection.

Independent claim 1 recites a heater comprising a plate including a heating surface which heats an object to be heated, and a resistance heater element provided in the plate. The resistance heater element comprises a continuous wiring pattern including a plurality of flexures and a uniform thermal pattern portion, wherein an area between immediately radially adjacent corners of immediately radially adjacent flexures is varied to improve thermal uniformity between said adjacent flexures. Applicant respectfully submits that support for rewritten claim 1 can be found, for example, in Figs. 11 and 12 of this application.

In the Office Action, the Examiner referred to his annotated copy of Fig. 1(a) from Kano (Examiner's Exhibit A attached to the Office Action) to show what he broadly interpreted as being "the area" that allegedly varies between immediately radially adjacent flexures. That is, as shown in the Examiner's Exhibit A, the Examiner asserted that the manner in which the distance between the two flexures varies is based on *different* measurement points, so the different areas between the flexures would vary as well. Applicant respectfully submits that this interpretation still does not appropriately correspond to the claimed area.

Claim 1 has been rewritten as shown above, and now recites that the area between immediately radially adjacent corners of immediately radially adjacent flexures varies to improve the thermal uniformity between the flexures. Applicant respectfully submits that this feature is not disclosed in Kano. Specifically, Applicant respectfully submits that even the Examiner's broad interpretation of the area that allegedly varies between Kano's flexures does not correspond to the area between

immediately radially adjacent *corners* of immediately radially adjacent flexures. In fact, in his annotations, the Examiner admitted that this area between the immediately radially adjacent corners of the immediately radially adjacent flexures is constant in Kano's structure (see Examiner's Exhibit A).

For at least the foregoing reasons, Applicant respectfully submits that Kano does not disclose each and every feature recited in rewritten independent claim 1.

Independent claim 15 recites a heater comprising a plate including a heating surface which heats an object to be heated, and a resistance heater element provided in the plate. The resistance heater element comprises a wiring pattern including a plurality of concentrically disposed element lines having terminals for input/output of electric power, and each element line includes a winding pattern. At least one element line passes between the terminals by means of a flexure which includes a swollen portion having substantially rounded corners that curve in an asymptotic direction with respect to at least one of an adjacent portion of that element line and an adjacent portion of another immediately adjacent element line.

The Examiner asserted that the inner surface of the fold of the flexure is a rounded corner, referring again to his annotated Figure 1(a) from Kano (Examiner's Exhibit A). On the other hand, the parts of Kano's "flexures" that protrude toward the terminal, which the Examiner previously designated as the "swollen portion" of Kano's structure, are not rounded to curve in the claimed asymptotic direction. In view of the above, Applicant respectfully submits that the "rounded corner" at the inner portion of the flexures in Kano cannot be considered to constitute a rounded corner of a swollen portion that curves in the claimed manner.

For at least the foregoing reasons, Applicant respectfully submits that independent claims 1 and 15, and all claims dependent directly or indirectly therefrom, define patentable subject matter over Kano. Accordingly, Applicant respectfully requests that the above rejection be reconsidered and withdrawn.

2. Claim 21 was rejected under §102(e) over Fure. Applicant respectfully traverses this rejection.

Independent claim 21 recites a heater comprising a plate having a heating surface which heats an object to be heated, at least one hole formed in the plate, and a resistance heater element provided in the plate. The resistance heater element comprises a continuous wiring pattern including a plurality of flexures connecting a plurality of radially sequential, substantially concentric arc portions, and a plurality of radially sequential curved avoidance portions respectively formed in the radially sequential arc portions. The avoidance portions have a radius of curvature that deviates from a radius of curvature of the arc portions to circumvent the at least one hole, and the radius of curvature of each avoidance portion on each radially sequential arc portion increases as a radial distance between each avoidance portion and the hole increases.

Independent claim 21 has been rewritten to clarify that a plurality of radially sequential curved avoidance portions are respectively formed in the radially sequential arc portions to more clearly distinguish Fure, and to clarify that the difference in the radius of curvature between the avoidance portions is measured between radially sequential avoidance portions on different, radially sequential arc portions of the wiring pattern. Applicant respectfully submits that Fure does not disclose any such structure.

More specifically, referring to the annotated and enlarged portion of Fure's Fig. 3, which the Examiner provided as Exhibit B attached to the Office Action, the Examiner asserted that the curved portion of the wiring line that avoids the hole in Fure has an inner avoidance portion with a radius of curvature, and that the outer curved edge of that same wiring line would constitute a different avoidance portion having a sequentially larger radius of curvature. Based on the Examiner's assertions and Examiner's Exhibit B, the two alleged "avoidance portions" according to Fure's structure are both located on a single arc portion of the wiring pattern, not on radially sequential concentric arc portions of the wiring pattern, as claimed.

For at least the foregoing reasons, Applicant respectfully submits that independent claim 21 defines patentable subject matter over Fure. Accordingly, Applicant respectfully requests that the above rejection be reconsidered and withdrawn.

3. Claims 2, 4, 5, 8, 9, 11, 13 and 14 were rejected under §103(a) over Fure in view of Mizuno. Applicant respectfully traverses this rejection.

Independent claim 2 recites a heater comprising a plate including a heating surface for heating an object to be heated, and a resistance heater element provided in the plate. The resistance heater element comprises a continuous wiring pattern including a plurality of radially sequential wirings having a plurality of radially adjacent folding parts, the folding parts having substantially rounded corners and a substantially straight connection portion connecting the substantially rounded corners of the folding parts. A first distance between a portion of one of the wirings before the wiring is folded to form one of the folding parts and an opposed, immediately radially adjacent portion of the wiring after the wiring is folded to form the folding part is substantially constant, and a second distance between a portion of the wiring at one end of the folding part and an opposed, immediately radially adjacent portion of the wiring at the other end of the folding part is greater than the first distance. Claims 5, 8 and 9 each depend from independent claim 2.

Independent claim 4 recites a heater comprising a plate including a heating surface for heating an object to be heated, and a resistance heater element provided in the plate. The resistance heater element comprises a continuous wiring pattern including a plurality of radially sequential wirings having a plurality of radially adjacent folding parts. The folding parts include a substantially linear connection part and corners provided at both ends of the connection part, wherein at least one of the corners of the folding parts is substantially rounded and swollen to protrude outwardly. A first distance between the radially sequential wirings in a first region of the wiring pattern other than a second region of the wiring pattern proximate the

folding parts is substantially constant, and a second distance between the radially sequential wirings in the second region is greater than the first distance.

The Examiner admitted that Fure does not show the folding parts with rounded corners recited in independent claims 2 and 4, but asserted that it would have been obvious to one of ordinary skill in the art "to adapt Fure with the claimed second distance between the radially adjacent wirings in the second region" based on the teachings in Mizuno "to further provide uniform heating distribution along the heating surface" (Office Action, page 3, last 3 lines). Applicant respectfully submits, however, that even in combination, these references still fail to disclose each and every feature recited in independent claims 2 and 4.

In particular, Applicants respectfully submit that Mizuno does not cure the above-mentioned admitted deficiency of Fure, because Mizuno still does not disclose the claimed folding parts having rounded corners that are connected by a substantially straight connection portion. Specifically, in Mizuno, the ceramic heater 31 has a pattern defined by carbon coated portions formed thereon (see Mizuno, Col. 6, lines 39-41). The carbon coating is radially divided into three regions that are independently controlled (see Mizuno, Col. 7, lines 1-6), and the radiant heat distribution to a substrate holder 113 (see Mizuno, Fig. 1) is controlled in part by the formation of a carbon coating pattern on the heater (see Mizuno, Col. 7, lines 22-27). Applicant respectfully submits, however, that one skilled in the art would readily understand that the effective "formation" of the carbon coating pattern, as disclosed in the context of Mizuno, relates to providing the radially divided regions that can be independently radially controlled, but does not in any way relate to forming any specific corner configurations as the regions of the carbon coating pattern are formed.

In fact, Applicant respectfully submits that there is no disclosure or suggestion in Mizuno that the shapes of any of the corners at the bends in the carbon coating pattern would have anything to do with how the radially divided zones are independently controlled (and thus how the carbon coating pattern can be said to control the radiant heat distribution), much less that specifically providing any

rounded corners, such as a rounded inner corner in that position, would or even could possibly provide any heating benefits whatsoever.

Applicant respectfully submits there is simply no evidence in Mizuno that rounding any portion of the carbon coating pattern would or even could occur in the first place, given the angles [i.e., perpendicular bends] at which the pattern lines of the carbon coating are redirected to form the desired pattern defining the divided zones. Applicant respectfully submits that the alleged "rounded" portion of the inner "corners" of Mizuno's elbow bends, which may appear to be slightly rounded in the drawing, is merely the result of an inaccuracy in the artist's rendition of the otherwise clearly squared pattern. That is, as explained above, there is simply no evidence in Mizuno that any of these pattern angles are or should actually be rounded as the pattern is formed, and there is certainly no evidence that an otherwise undisclosed rounded pattern corner would or even could provide any additional heating benefits. Indeed, Applicant respectfully submits that making such a speculative assertion based on an artist's rendition in a drawing figure without any further support is suggestive of the hindsight-based nature in which the above reference was applied in the Office Action.

In view of the above, Applicant respectfully submits that one skilled in the art could not possibly have arrived at the claimed invention in view of the applied references without otherwise improperly relying on the benefits of the present application, which is impermissible.

Claims 11, 13 and 14 each depend directly from independent claim 21, which is distinguished from the applied references in section 2 above. Since independent claim 21 is patentable over Fure for the reasons explained above, Applicant respectfully submit that claims 11, 13 and 14 likewise define patentable subject matter over the applied references at least by virtue of their respective dependence from claim 21.

For at least the foregoing reasons, Applicant respectfully submits that all of the claims pending herein define patentable subject matter over the applied references and respectfully request that the above rejection be reconsidered and withdrawn.

4. Claims 6, 7 and 12 were rejected under §103(a) over Fure in view of Mizuno and further in view of Yoshida and claim 18 was rejected under §103(a) over Kano in view of Yoshida. Applicant respectfully traverses these rejections.

Claims 6 and 7 depend from independent claim 2, which is discussed above in section 3. Claim 12 depends from independent claim 21, which is discussed in section 2, and claim 18 depends from independent claim 15, which is discussed in section 1.

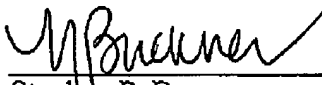
Applicant respectfully submits that dependent claims 6, 7, 12 and 18 define patentable subject matter over the respectively applied references for at least the same reasons explained above in connection with independent claims 2, 15 and 21 at least by virtue of their respective dependencies therefrom. For at least the foregoing reasons, Applicant respectfully requests that the rejections be reconsidered and withdrawn.

If the Examiner believes that contact with Applicants' attorney would be advantageous toward the disposition of this case, the Examiner is herein requested to call Applicants' attorney at the phone number noted below.

The Commissioner is hereby authorized to charge any additional fees associated with this communication or credit any overpayment to Deposit Account No. 50-1446.

Respectfully submitted,

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Date


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